

REMARKS

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested. By this Amendment, claims 1, 3, and 5 are amended, and claim 2 is canceled. Accordingly, claims 1 and 3-5 are pending in this application.

Claims 1-5 stand rejected under 35 U.S.C. §103(a) over Yutaka et al., "Novel Modulation and Detection for Bandwidth-Reduced RZ Formats Using Duobinary-mode Splitting in Wideband PSK/ASK conversion" (hereafter "Yutaka") in view of F. Liu et al., "A Novel Chirped Return-to-Zero Transmitter and Transmission Experiments," (hereafter "Liu"). In response, claims 1 and 5 are amended and believed to be patentable over the applied art for the reasons discussed below.

First, Applicants respectfully submit the asserted combination of applied references do not teach or suggest all of Applicants' claim elements.

Second, the grounds of rejection constitute an improper reconstruction of Applicants' claimed invention.

The Office Action asserts that the transmitter depicted in Fig. 3 of Yutaka discloses the mixer recited in claim 1. Applicants respectfully disagree and submit that, as amended, the claimed mixer is distinguished from Yutaka. Specifically, amended independent claim 1 recites, *inter alia*, "a mixer generating a modulator input by mixing data with a half clock signal, "wherein the mixer adjusts logical data "0" to data 0 V and adjusts a clock signal to symmetrically swing around 0 V." Unlike Applicants mixer that generates a signal having three states, Fig. 3 of Yutaka appears only to disclose a two-mode-beat pulse generator and an optical duobinary data modulator wherein the output is a duobinary carrier-suppressed RZ (return to zero) signal.

Furthermore, the Examiner admits that Yutaka fails to disclose a mixer to combine the NRZ data signal with the half clock signal and couple the two signals into a single modulator. The Examiner relies upon Fig. 1 of Liu to remedy the deficiencies of Yutaka. Applicants respectfully disagree and submit that the 2:1 selector of Liu appears to have 3 inputs, i.e., a 10 GHz clock for select control, a 10 Gb/s NRZ data input (DATA 1) and Data "0" (DATA 2).

(See Fig. 1 of Liu). Applicants' mixer, however, comprises only 2 inputs, i.e., a single data input and a single clock signal.

In addition, unlike Liu's selector that has only 2 output levels ("0" and "1"), Applicants disclose a mixer output having three levels (-1, 0, and 1). Furthermore, Liu discloses wherein a clock signal of the selector has the same frequency as the frequency for the data transmission, i.e., a clock rate of 10 GHz and a data rate of 10 Bb/s. Applicants' mixer, however, recites wherein the clock signal is half the frequency of the data transmission.

Applicants' apparatus is further distinguished from Liu in that the output of Liu's device is a chirped RZ signal whereas the output of apparatus recited in claim 1 is a carrier suppressed RZ signal.

Notwithstanding the failure of Yutaka and Liu to disclose, teach, or suggest the mixer, as recited in claim 1, the asserted combination of references fails to disclose the recited low pass filter (LPF). The Office Action indicates that Yutaka, at page 2068, right column lines 27-31 and FIG. 3 discloses a LPF as recited in claim 1. Applicants respectfully disagree.

At the outset, Applicants' claim 1 is amended to recite "wherein the bandwidth of the LPF is adjusted to increase dispersion tolerance of the optical signal while minimizing distortion of the optical signal." Applicants respectfully submit that nowhere does Yutaka disclose a LPF having these characteristics. Yutaka appears only to disclose a Bessel-Thomson group delay filter which may remove unnecessary high frequency component of the NRZ data signal.

Furthermore, Applicants respectfully submit that the combination of Yutaka and Liu is improper, and appears to be based on hindsight reasoning. Yutaka discloses generating a carrier suppressed-RZ signal whereas Liu discloses generating only chirped RZ signals. Applicants respectfully submit that neither Yutaka nor Liu suggest the desirability of combining such teachings. It is improper to use the claimed invention as an instruction manual to piece together the teachings of the prior art so that the claimed invention is rendered obvious. The Office Action appears to use improper hindsight reconstruction to pick and choose among isolated disclosures. Accordingly, it is respectfully submitted that the combination is improper.

Applicants respectfully submit, therefore, that independent claim 1 is patentable not only due to the failure of Yutaka in view of Liu to disclose, teach or motivate all recited features of

the claims, but are also patentable based upon the improper combination of Yutaka and Liu. Claims 3-5 depend from this independent claim and are likewise patentable over the asserted combination of references art for at least their dependence on an allowable base claim, as well as for the additional features it/they recite. Accordingly, withdrawal of this rejection is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 and 3-5 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,
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